Fig.1.

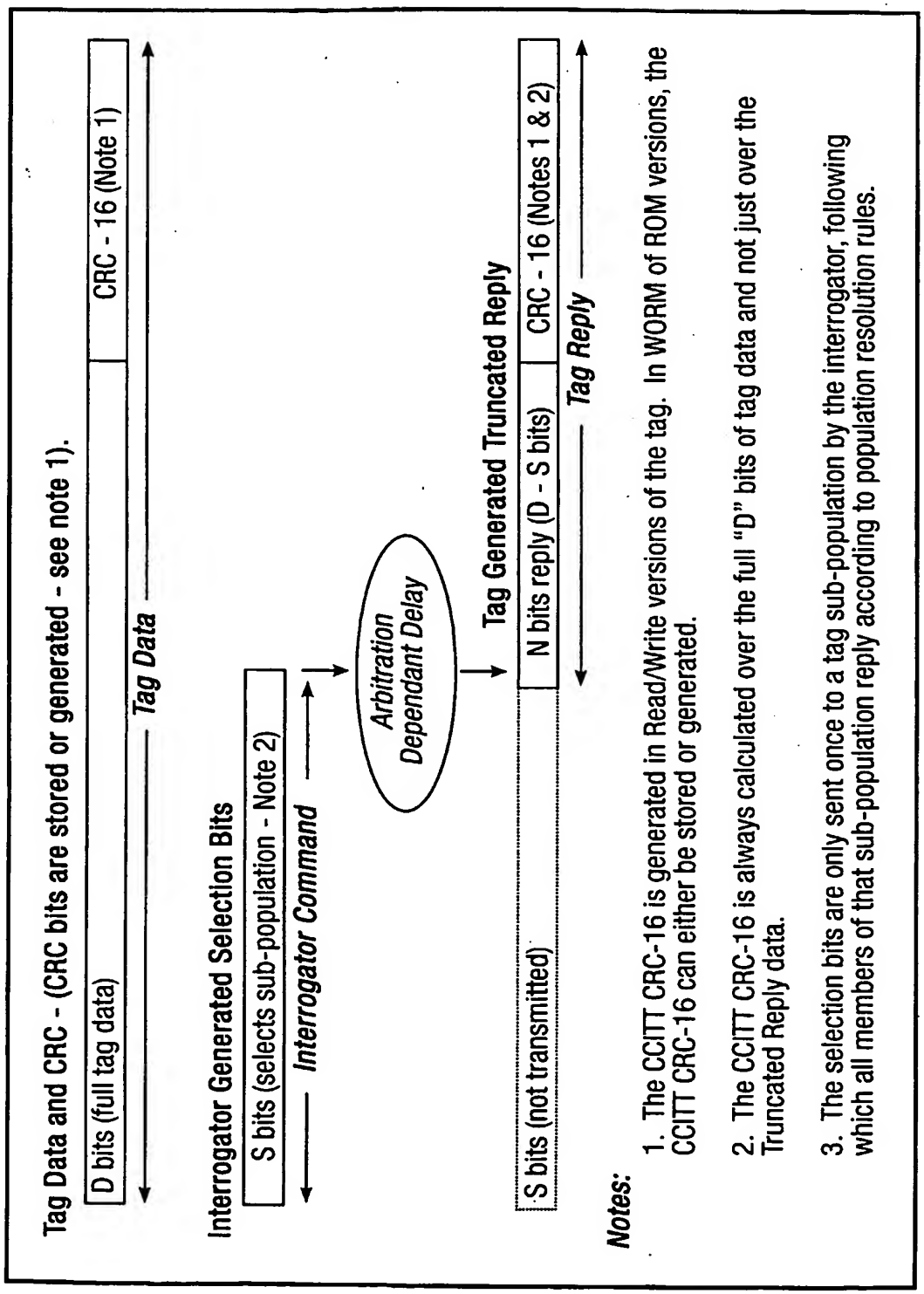
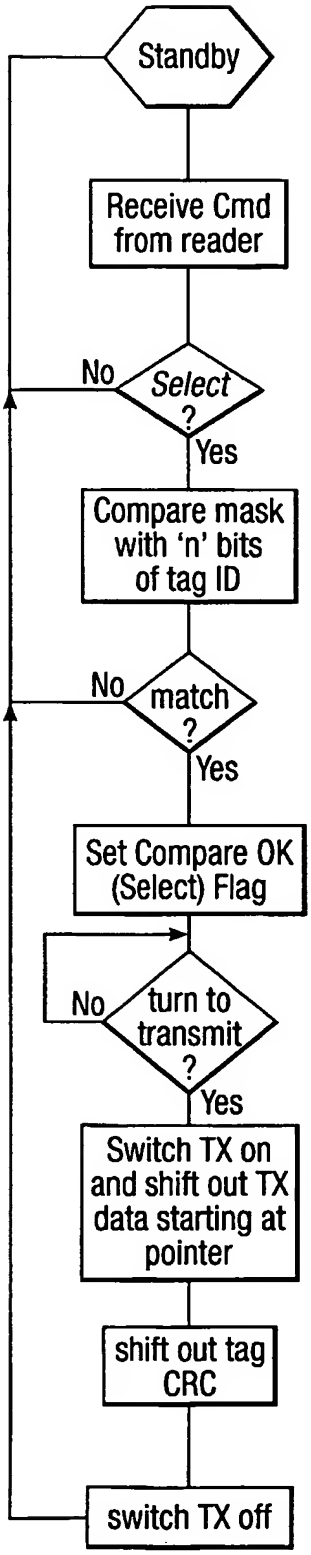

Tag Data and CRC - (CRC bits are stored or generated - see note 1).
D bits (full tag data)
CRC - 16 (Note 1)
Tag Data
Interrogator Generated Selection Bits
S bits (selects sub-population - Note 2)
Interrogator Command
Arbitration Dependant Delay
Tag Generated Truncated Reply
S bits (not transmitted)
N bits reply (D - S bits)
CRC - 16 (Notes 1 & 2)
Tag Reply
Notes:
1. The CCITT CRC-16 is generated in Read/Write versions of the tag. In WORM of ROM versions, the CCITT CRC-16 can either be stored or generated.
2. The CCITT CRC-16 is always calculated over the full "D" bits of tag data and not just over the Truncated Reply data.
3. The selection bits are only sent once to a tag sub-population by the interrogator, following which all members of that sub-population reply according to population resolution rules.

Fig.2.



Is the command a 'select' command containing a mask parameter ?

The tag clocks its TX shift register together with the incoming mask data and performs a bit by bit comparison of the tag ID and the mask for 'n' bits as determined by the mask length. Simultaneously the ID is shifted through the tag CRC generator

If the mask and 'n' bits of the tag ID match then the tag sets its Selected flag and waits for its turn to transmit as determined by the system arbitration algorithm. A pointer indicates the position of the next bit in the tag memory following the last bit compared. The CRC generator retains its current value.

When it is the tag's turn to transmit it starts its transmission from the bit position indicated by the pointer. The ID is simultaneously shifted through the CRC generator, the CRC generator continues from its last position without resetting.

When the last ID bit is shifted out of tag memory the tag switches to shifting out the CRC bits. When the last CRC bit has been shifted out the TX switches off completing the reply cycle. The CRC is calculated over the complete tag ID stored in memory even though only a portion of the ID was actually transmitted.

The reader calculates the first portion of the CRC based on the mask value transmitted to the tag in the select command.

As the reader receives the tag transmission it continues from where it left off, calculating the CRC on the incoming message

Once the reader has received the the last message bit from the tag it compares the CRC transmitted by the tag with the CRC generated in the reader from the mask value transmitted by it and the data stream received from the tag.

Fig.3.

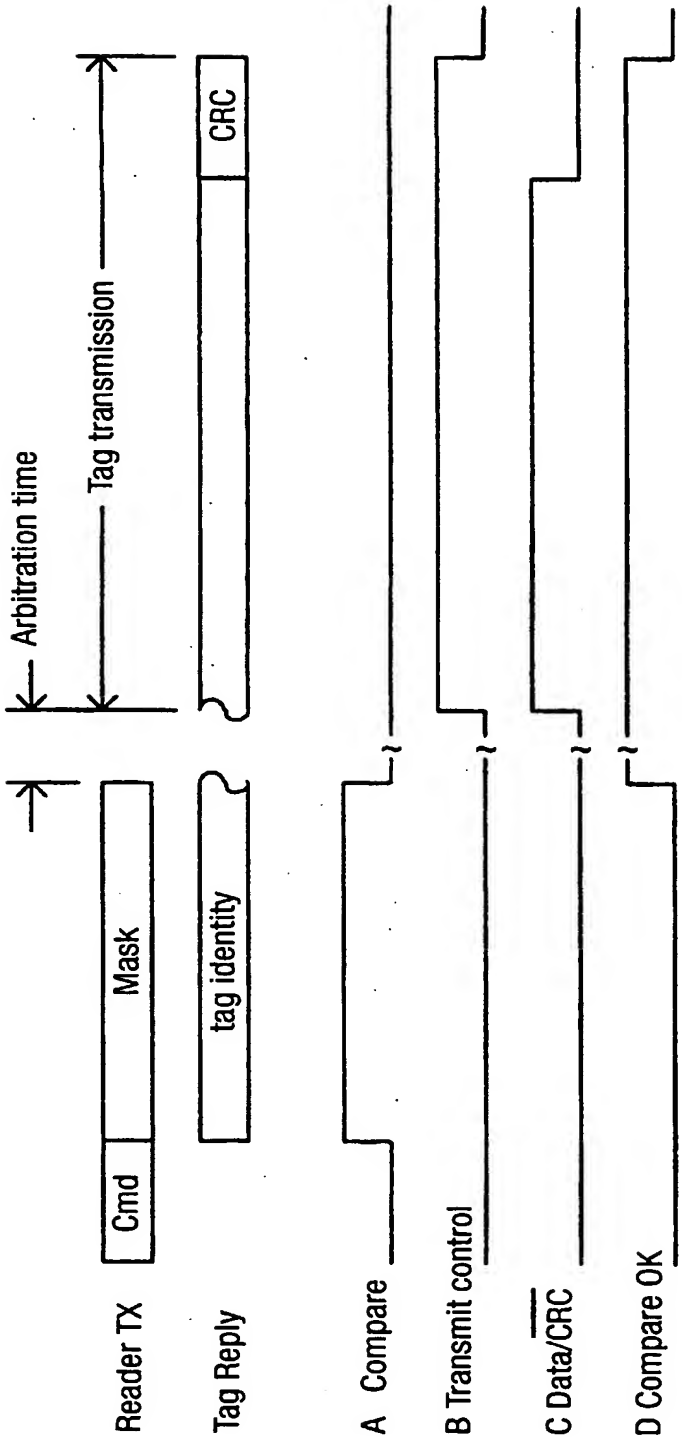
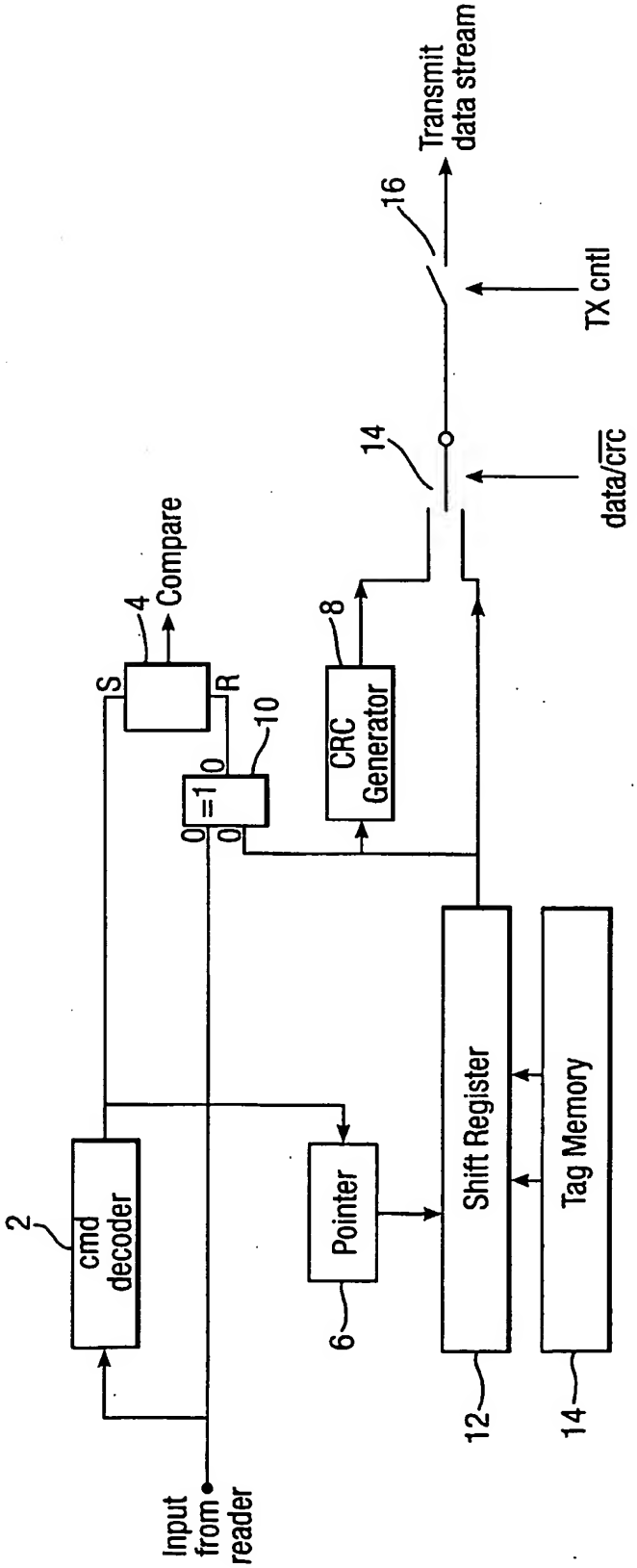

Arbitration time
Tag transmission
CRC
Reader TX
Cmd
Mask
Tag Reply
tag identity
A Compare
B Transmit control
C Data/CRC
D Compare OK

Fig.4.


Transmit data stream
16
TX cntl
14
data/$\overline{crc}$
Compare
4
S
R
10
=1
0
0
8
CRC Generator
2
cmd decoder
Pointer
6
Shift Register
12
Tag Memory
14
Input from reader